

REMARKS

Claims 1-13, 16-28, and 31-32 are now pending in the application. By this paper, Claims 1 and 16 have been amended, Claims 14-15 and 29-30 have been cancelled without prejudice or disclaimer of the subject matter contained therein, and Claims 31 and 32 have been added. The basis for these amendments can be found throughout the specification, claims, and drawings originally filed. No new matter has been added. The preceding amendments and the following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance.

The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-3, 5-6, 8, 16-18, 20-23 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kubo (U.S. Pat. No. 6,257,688).

This rejection is respectfully traversed.

Independent Claim 1 calls for a droplet discharging apparatus including means for discharging a discharge liquid in the form of droplets through an aperture by mechanically deforming a piezoelectric element by a normal drive signal, wherein the droplets are discharged from the aperture by a cooling drive signal based on a temperature of the discharge liquid, which is different from the normal drive signal. Similarly, independent Claim 16 calls for a droplet discharging method including discharging a discharge liquid in the form of droplets through an aperture by

mechanically deforming a piezoelectric element, wherein the discharge liquid is cooled by cooling discharge based on a temperature of the discharge liquid, which is different from normal discharge.

In this manner, the present invention discloses a fixed substrate having a drive integrated circuit and a piezoelectric element secured thereto. The piezoelectric element is actuated based on drive signals from a switching circuit to selectively discharge liquid from a discharging head. An operating temperature of the drive circuit is detected by a temperature detector to reflect an operating heat of the piezoelectric element, which is indicative of a temperature of the discharged liquid.

Kubo fails to teach adjusting a drive signal based on a temperature of a discharge liquid. Rather, Kubo teaches an ink jet recording apparatus including a shear mode type recording head employing a piezoelectric ceramic material and a nozzle that applies ink to a medium in response to a drive pulse signal. See Kubo at Col. 3, Ins. 12-23 and Col. 4, Ins. 42-46. A CPU changes the drive pulse signal according to changes in *ambient temperature* to ensure recording quality even when ambient temperature is varied. See Kubo at Col. 6, Ins. 45-56 and Col., Ins. 56-64.

While Kubo discloses controlling an ink jet recording apparatus using a drive pulse signal, Kubo does not teach using a temperature of a *discharge liquid* to adjust the drive pulse signal. Therefore, Kubo fails to teach each and every element of the claimed invention.

Because Kubo fails to teach adjusting a drive signal based on a temperature of a discharge liquid, Applicants respectfully submit that Kubo fails to teach each and every element of the present invention. Accordingly, Applicants respectfully submit that

independent Claims 1 and 16, as well as Claims 2-3, 5-6, 8, 15-18, and 20-23, respectively dependent therefrom, are in condition for allowance. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 4 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kubo (U.S. Pat. No. 6,257,688) in view of Tajika (U.S. Pat. No. 5,861,895).

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kubo (U.S. Pat. No. 6,257,688) in view of Mikami (U.S. Pat. No. 4,633,269).

Claims 9, 11-15, 24 and 26-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kubo (U.S. Pat. No. 6,257,688) in view of Usui et al. (U.S. Pat. Application No. 2004/0070651).

Claims 10 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kubo (U.S. Pat. No. 6,257,688) in view of Shinoura (U.S. Pat. No. 6,714,173).

These rejections are respectfully traversed.

Independent Claims 1 and 16 are believed to be in condition for allowance in light of the remarks contained above. Because Claims 4, 7, 9, 10-15, 19, and 24-30 respectively depend from independent Claims 1 and 16, dependant Claims 4, 7, 9, 10-15, 19, and 24-30 should similarly be in a condition for allowance for at least the same reasons. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

CLAIM OBJECTIONS

Claims 14, 15, 29 and 30 are objected to under 37 CFR 1.75(c), a being of improper dependent form for failing limit the subject matter of a previous claim.

Applicants respectfully submit that this rejection is moot as Claims 14-15 and 29-30 have been cancelled without prejudice. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

NEW CLAIMS

Claims 31 and 32 are added for consideration. Independent Claims 1 and 16 are believed to be in condition for allowance in light of the foregoing remarks. Because Claims 31 and 32 depend from Claims 1 and 16, Claims 31 and 32 are believed to be in condition for allowance.

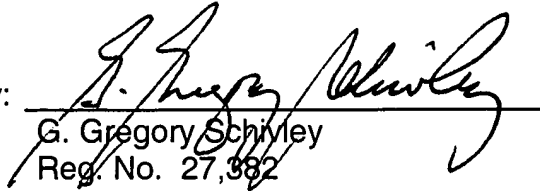
CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Dec 20, 2005

By: _____


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